

CLAIMS

1. An apparatus for presenting and processing components stored in stackable trays, comprising:
 - a conveyor system having an input and an output portion;
 - a plurality of work stations, each workstation having an associated robot and weld fastener welder;
 - a reader positioned adjacent the input portion; and
 - a controller operatively connected to the reader, conveyor, the robots, and the fastener welder, said controller being operable to activate one of a plurality of software loops upon based on a first signal received from the optical reader.
2. The apparatus of claim 1 wherein the each stackable tray comprises an indicia indicative of what components are found within the stackable tray and wherein the controller functions to initiate a first control pattern based upon the type and number of components within the stackable tray.
3. The apparatus of claim 1 further comprising a first stackable tray comprises a first indicia and a second stackable tray comprising a second indicia, said controller configured to take the first stackable tray into the input portion and read the indicia, said controller further configured to move the first stackable tray to a first tray first location.

4. The apparatus of claim 3 wherein the controller further configured to move the first stackable tray to a second tray location.
5. The apparatus of claim 3 wherein the first tray location is a first work station.
6. The apparatus of claim 4 wherein the second tray location is a second work station.
7. The apparatus of claim 5 wherein the first work station comprises a first robot and a first weld fastener welder.
8. The apparatus of claim 7 wherein the first robot is configured to remove components and position them in an orientation so as to allow the welding of a weld fastener.
9. The apparatus of claim 8 wherein the first fastener welder fastens a weld fastener to an exterior surface of the component.
10. The apparatus of claim 6 wherein the second work station comprises a second robot and a second weld fastener welder.

11. The apparatus of claim 10 wherein the second robot is configured to position the component in a position so as to allow the fastening of a second weld fastener welder.

12. The apparatus of claim 11 wherein the second weld fastener welder is configured to weld a second weld fastener to a second location on the component.

13. The apparatus of claim 12 wherein the second fastener welder is configured to weld a third fastener to a third location on the component.

14. The apparatus of claim 7 wherein the first weld fastener welder is configured to weld a fourth weld fastener onto a second location on the component.

15. An apparatus for presenting and processing components stored in stackable trays, comprising:

- a conveyor system having an input and an output portion;
- a plurality of work stations, each workstation having an associated robot and weld fastener welder;
- an optical reader positioned adjacent the input portion; and
- a controller operatively connected to the optical reader, conveyor, the robots, and the fastener welder, said controller being operable to activate one of a plurality of control loops upon based on a first signal received from the optical reader.

16. The apparatus of claim 15 wherein the control loop functions to control the movement of a least one robot and at least one weld fastener welder.

17. The apparatus of claim 15 comprising a first stackable tray having a first indicia and a second stackable tray having a second indicia.

18. The apparatus of claim 17 wherein the conveyor is configured to move the first and second stackable trays to one of the work stations in response to instructions from the controller.

19. The apparatus of claim 16 comprising a first work station having a first robot and a first weld fastener welder.

20. The apparatus of claim 19 comprising a second work station having a second robot and a second weld fastener welder configured to weld studs to an outer surface of the component.